(*Modernisirung*), the flight of stairs, ten feet wide, in the south part of the hall, was also to be removed. Although this old staircase may not possess the pompous elegance of modern corridors and stairs—still, it is more in keeping with the *spirit* of the building, than to see the plain south front of the city hall of rough, unpolished freestone, and to it added a quite modern structure. In alluding to these objections, raised by the Opposition of German and Rhenish architects—we cannot but urge the necessity of fully entering (in any given restoration) into the ideas and intentions of old masters. Mr. Zirner's plan for the restoration of Cologne Cathedral is a pattern in this respect. But the more architectural and art taste pierces all classes of society—the greater the duty of the builder to renounce all egotistic conceit, and still more low selfishness, and to come up to the demands of an emerging (*aufstrebenden*) age by great works, or, at least, by truthful restorations.

THE PURIFICATION OF LEADEN PIPES AND CISTERNS.

SIR,—In the last number but one of your generally well-informed paper, you have published an article taken from the *Morning Post*, entitled "Pure water for a penny,—Pipes and cisterns purged by Epsom salts," calculated to alarm the public, from its obvious inference that the whole of the water-pipes and cisterns of your great city are impregnated with a "*poisonous*" salt of lead." If this impression exists in any degree, however small, it should be at once removed, for which purpose I trouble you with these remarks.

The writer of the article alluded to does not appear to understand his subject, or he would know that sulphuric acid has a greater affinity for lead in solution than for magnesium, and also that it does not act on the former unless concentrated and at a boiling heat, therefore is lead used for cisterns, &c., in our manufactories where large quantities of sulphuric acid are required.

The effects, too, "*of turning the cistern into silver*," as described by this philanthropist, would be produced if the water contained either lime or barytes in solution, both of which have a stronger affinity for the acid than magnesia; but I desire most to direct attention to that point where the writer, by way of caution, says, that "particular care, of course, is necessary afterwards in the cleansing away *of the poisonous salt of lead*, thus formed in either way." Now it is well known to every one having the least knowledge of the subject, that the sulphate of lead *is not a poisonous salt*, but insoluble and innoxious; and, in fact, to produce this salt when any other salt of lead is taken internally, the whole of which are more or less poisonous, a salt is given as an antidote, containing sulphuric acid, which combines with the lead, and precipitates the harmless but much-abused sulphate of lead. So that, instead of its being of so dangerous a nature, whatever poisonous salts of lead may exist in water from the accidental presence of the nitric or acetic acids, some addition of sulphuric acid would render them perfectly harmless.

Your general remark respecting the application of allum to deposit impurities is correct, it being a sulphate of allum.

I beg to say, in conclusion, that my only object in writing is, that no incorrect idea of danger should take possession of the public mind so as to prejudice them against the use of a metal that has been in use in all parts of the known world for thousands of years.

I am, Sir, &c., VOX.

Brighton.

*** Our correspondent's anxiety to prevent the public mind from being prejudiced against the use of a metal respecting which, and its various forms and uses, *caution*, such as our own, has been reiterated for hundreds of years, or at least ever since "Vitruvius (de architectura lib. 8, c. 7) published a very strong remonstrance against leaden pipes when used for the purpose of conveying water," or since "Galen *cautioned* us" * to the like effect, is an anxiety which would be justifiable and becoming, in a matter of so much importance, did it not display rather more zeal than either knowledge or prudence. But it is rather an odd way to establish or increase the confidence of the public in lead, by drawing their attention so pointedly to the fact that 'the whole' of its salts, with one alleged but denied exception, are 'poisonous.' However, let us now to the more immediate subjects of complaint.

In the first place, as to the precautionary advice to clear away a poisonous salt of lead which *would* be formed *were* the pipes and cisterns to be cleansed in the way *proposed*, how does that lead to the "obvious inference that the whole of the water-pipes and cisterns of our great city *are* impregnated with a 'poisonous' salt of lead?" And if it does not, who then is the 'philanthropic' alarmist? Our correspondent "Vox" seems to have raised an Umbra out of the 'chambers of his own imagination' for the mere pleasure of knocking it, if possible, on its own unsubstantial Caput. Then again how does his assurance that "the sulphuric acid has a greater affinity *for lead in solution* than for magnesium," affect the statement or inferences in the paragraph complained of: *the lead seized by the sulphuric acid of the Epsom salt was not in solution at all!* And, moreover, although in the struggle of affinities *between two salts in solution*, an insoluble resultant salt will precipitate, or a volatile one escape, out of the field of action, with one of the unsettled acids, that is no proof that the bases of such salts have 'a greater affinity' for the acid with which they are either precipitated or volatilized, than the base left in solution. The fact is often quite the contrary.

As to any affinity of sulphuric acid for the metaloid magnesium, does not "Vox" know that the saline affinity of such an acid is one for the oxide magnesia, and not for the metaloid magnesium at all, and that in fact it will unite with no metal or *metaloid*, till it be oxidized; and hence that concentrated sulphuric acid will even fail to act on a metal which diluted acid will oxidize by aid of the water of dilution, and then will readily dissolve. That *dilute* sulphuric acid *will* thus oxidize and then dissolve even metallic lead, the following quotation from Christison will sufficiently prove:—"I have found," says he (p. 537, last edition) "that if *distilled water* contained a 4000th *or even only a* 7000th *of sulphuric acid*, fifty grains of lead kept in it for thirty-two days gained one-seventh or one-twelfth of a grain in weight, and were covered with beautiful crystals of sulphate of lead! A minute trace of lead could be detected in the water." In the case under discussion however, it is lead already in the dissolvable form of oxide or carbonate in the scurf, and not the metallic lead at all with which it would more obviously unite, and thus the more speedily strip, and leave comparatively untouched, the pure surface of the cistern.

The allusion to 'silver' is altogether irrelevant; it was a mere menial's mode of announcing the cleansing of the surface; so that we shall now pass at once to the gist of the whole argument, which we shall very soon dispose of. "It is well known to every one having the least knowledge of the subject," says our correspondent, "that the sulphate of lead *is not a poisonous salt, but insoluble and innocuous.*" Now really "Vox" is very much to blame in not affording our standard authorities in medical jurisprudence, such as Paris and Christison, 'the least knowledge' of a subject of so much importance; for although they recommend, in the case of poisoning by *soluble* salts of lead, which enter the blood and penetrate the whole frame, that, of *two evils*, it is best to choose *the least*, by converting the soluble salt into an insoluble, which *only* acts poisonously on the bowels, whence it can, moreover, be more readily purged; yet not one of these authorities has dared to tread on the dangerous ground on which "Vox" has rushed, in assuring the public that they may safely swallow sulphate of lead *ad libitum*, as it is insoluble and innoxious. On the very contrary, Paris says, without the least exception in favour of any one salt, that although "lead in its metallic state does not exert any action on the living system,—when oxidized or *in the form of salt, its virulence is very considerable*;" and Christison declares that "it is probable that ALL the preparations of lead are poisonous except the metal, and *perhaps* also the *sulphuret*," a *very different* thing from the sulphate; and he thus partially excludes the metal and the sulphuret, simply because it is a general principle in toxicology that "the metals are not poisonous unless *oxidated*," but he afterwards adduces facts to prove that even these also may be oxidized in the bowels, and there assume a poisonous form. As to the sulphate, surely it is not necessary to remind or inform one who 'understands his subject,' that *it* contains an oxidated, and hence a poisonous, form of lead, though sulphuret does not; and that, although insoluble, it is not the only insoluble form of lead that is poisonous.

The importance of this subject to the public must be our excuse for the length of this note; and we trust that "Vox" himself is now conscious of the danger of rashly assuring the public that they may safely allow sulphate of lead to get into their food and their bowels, as undoubtedly it would, unless cautiously and carefully cleansed away, wherever the mode of cleansing, pointed out in the paragraph complained of, might happen to be adopted; and we may add, that the caution was our own, and *advisedly* given; the facts alone having been taken from the *Morning Post*.

* See Paris's Medical Jurisprudence, also Christison on Poisons.

THE ALTERATIONS IN WESTMINSTER ABBEY.

THE alterations, to which we have several times referred, are being proceeded with rapidly, notwithstanding a very generally expressed opinion in opposition to opening the transepts, and in favour of removing the organ-screen and fitting up the nave, or part of it, for the services. Objectors to the latter course say, what are you to do with the organ, and where place the screen? but the reply to this is easy.

It happens that the space of wall between the head of the west door and the bottom of the great west window is greater than in most churches, and at once obviates the first difficulty, as it affords a good place for the organ. There is a space of about 25 feet in height, 29 in breadth, and 24 in depth, without stopping one pane of the window, or concealing one architectural feature of the building. As to the screen, place it to support the organ as it now does, and let it extend across between the first pair of pillars of the nave, with its architectural face to the east. It will then be seen by the whole congregation (whereas now it faces the deserted nave, and is only seen by those who visit the monuments), and it will match the altar-screen, which will then bound the lower part of the view at the east end of the church.

Workmen have commenced putting in the new painted glass in the rose window of the south transept.

CANDIDATES FOR THE DEGREE OF ASSOCIATE OF THE ROYAL ACADEMY.—The following gentlemen entered their names in the book of the Royal Academy as candidates for its honours:—Among them are some we never heard of before; while others, well known and esteemed, we miss from the list. *Painters*—William Linton, John Denman, John Lucas, Edward J. Niemann, George Harvey, John Rider, George Lance, Richard Ansdell, John Philip, J. D. Harding, Eden Upton Eddis, Alfred Vickers, James Henry Nixon, John Zephaniah Bell, Henry W. Phillips, Frederic Newenham, Frank Williams, Augustus Leopold Egg, William Essex (enamel), E. V. Rippingille, Samuel West, Thomas Mogford, J. Goddard, W. D. Kennedy, Henry Barnard Chalon, Frederic Goodall, Edward William Cooke, Henry Bright, George Richmond, Richard Rothwell, Robert Thorburn, Alexander Fraser, Frederic R. Pickersgill, William Simson, Samuel Hallé, Henry Pickersgill, jun., Alexander Johnston, Thomas Ellerby, R. S. Lauder, Henri Philipe Heidemann, F. H. Henshaw, Thomas Henry Illidge, John Wood, Marshall Claxton, John Calcott Horsley, Frank Stone, and N. J. Crowley. *Sculptors*—John Bell, William Behnes, Edmund Cotterill, William Graham, Henry Weeks, Thomas Earle, Frederick Thrupp, Christopher Moore, M. L. Watson, Edward B. Stephens, John Ternouth, Charles Augustus Rivers, and Edward Davis. *Architects*—Sydney Smirke, Thomas Henry Wyatt, George Gilbert Scott, and J. J. Scoles.—*Art-Union Journal.*

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